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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,090	06/28/2001	James Zu-Chia Teng	IBM 2 0007SVL920010011US1	5345

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EXAMINER

GODDARD, BRIAN D

ART UNIT	PAPER NUMBER
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2171

DATE MAILED: 08/11/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/894,090

Applicant(s)

TENG ET AL.

Examiner

Brian Goddard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claim 18 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Specifically, one of skill in the art would not be enabled to make and/or use a lock manager wherein “the table row is without an exclusive X-lock assigned thereto” AND “the table row has an exclusive X-lock assigned thereto” (lines 9-10) as claimed. In other words, it is unclear how a single table row (“the table row”) can *have* an X-lock assigned thereto and *not have* an X-lock assigned thereto at the same time. One or the other must be the case, but both are not possible at the same time. The specification provides no clarification on this matter, and gives no enabling disclosure in this direction.

In the interest of compact prosecution, the examiner assumes that “and” should be replaced with ‘or’ in line 9, or another appropriate indication that the alternative is the case should be made.

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites the limitation "the unique key index table" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 is dependent upon claim 17, and is therefore indefinite for the same reason.

In the interest of compact prosecution, the examiner assumes that "the unique key index table" refers to a unique key index table associated with the index manager (from claim 15).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-18 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

Patent No. 6,363,387 to Ponnekanti et al.

Referring to claim 1, Ponnekanti discloses a database management system for managing a database as claimed. See Figures 1-3 and the corresponding portions of Ponnekanti's specification for this disclosure. In particular, Ponnekanti teaches "a database management system [See Fig. 1] for managing a database application [170], the database application including a database having at least one table [250 (See e.g. Column 3, lines 7-21)], and an index [245] having at least one unique key index table [See column 7, line 52 – column 9, line 60] corresponding to the at least one table, the DBMS comprising:

- a data manager [268 - 269] for managing updates of the database;

- an index manager [See column 12, line 3 et seq.] for managing updates of the unique key table index;

- a transaction manager [260] for executing database transactions in cooperation with the data manager and the index manager [See Fig. 2A & corresponding portion of the specification]; and

- a lock manager [See column 11, line 57 et seq.] cooperative with the index manager and the data manager for restricting access to a first table element [row] of said at least one table by assigning one or more locks [locks & latches] thereto, said locks being selected from a plurality of lock types including at least,

- an exclusive X-lock [EXCLUSIVE lock] that enables exclusive access to the first table element [See column 10, line 52 – column 11, line 29], the exclusive X-lock including a Delete attribute [ROW\_DELETE status bit] associated therewith, a SET state of the Delete attribute being indicative of a

transaction holding the X-lock being a delete transaction [See column 12, lines 34-64]; and

an unconditional [See columns 11-12] S-lock [SHARED lock] that enables shared access to the first table element and is selectively assigned by the lock manager to the first table element only when the first table element is without an exclusive X-lock previously assigned thereto [See column 11, lines 36-41]" as claimed.

Referring to claim 2, Ponnekanti discloses the DBMS as claimed. See Figure 3 and the corresponding portion of Ponnekanti's specification for this disclosure. In particular, Ponnekanti teaches the DBMS as set forth in claim 1, "wherein:

the plurality of lock types further includes a Conditional [See columns 11-12] S-lock [SHARED lock] that enables shared access to the first table element; and

the lock manager selectively assigns the Conditional S-lock [grants the "lock\_instant" request] to the first table element only when the first table element is without an exclusive X-lock previously assigned thereto with the Delete attribute in a SET state [See discussion of Step 312]" as claimed.

Referring to claim 3, Ponnekanti discloses the DBMS as claimed. See column 12, lines 34-64 for the details of this disclosure. In particular, Ponnekanti teaches the DBMS as set forth in claim 2, "wherein:

the unique key index table further includes a pseudo-delete flag [ROW\_DELETE bit] corresponding to each key entry of the unique key index table [See column 12, lines 58-64]; and

the index manager selectively SETs the pseudo-delete flag to indicate deletion of a table row corresponding to the index key entry [See column 12, lines 34-64]" as claimed.

Referring to claim 4, Ponnekanti discloses the DBMS as claimed. See Figure 3 and the corresponding portion of Ponnekanti's specification for this disclosure. In particular, Ponnekanti teaches the DBMS as set forth in claim 3, "wherein in response to receiving a request from the index manager to enter an index key entry and a corresponding new row identification RID [table scan (301) for an insert or update] in which the index key entry corresponds to an existing index key entry whose pseudo-delete flag SET [See Step 312], the index manager is operative to:

request a Conditional S-lock [lock\_instant request (See Step 323)] on the table row corresponding to the existing index key entry; and

conditional upon the Conditional S-lock on the table row corresponding to the existing index key entry being granted by the lock manager [See column 13, lines 38-42], update the table index key entry with the new row identification RID [See column 11, line 65 – column 12, line 2 and column 15, line 61 et seq.], release the Conditional S-lock on the table row corresponding to the existing index key entry [See column 14, line 29 et seq.], and reset the pseudo-delete flag to an OFF state [See column 12, lines 55-57]" as claimed.

Referring to claim 5, Ponnekanti discloses the DBMS as claimed. Again, see Figure 3 and the corresponding portion of Ponnekanti's specification for this disclosure. In particular, Ponnekanti teaches the DBMS as set forth in claim 4, "wherein in response

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to receiving a request...[See the discussion of claim 4 above], the index manager is adapted to:

conditional upon the Conditional S-lock on the table row corresponding to the existing index key entry being denied [lock\_instant request fails] by the lock manager [See column 13, lines 42-48], request an unconditional S-lock [sleeps on the lock until an unconditional lock can be granted] on the table row corresponding to the existing index key entry; and

upon granting of the unconditional S-lock...[See the discussion of claim 4 above]" as claimed.

Referring to claim 6, Ponnekanti discloses the DBMS as claimed. See Figure 3 and the corresponding portion of Ponnekanti's specification for this disclosure. In particular, Ponnekanti teaches the DBMS as set forth in claim 3, "wherein in response to receiving a request from the index manager to enter an index key entry and a corresponding new row identification RID [table scan (301) for an insert or update] in which the index key entry corresponds to an existing index key entry whose pseudo-delete flag is NOT SET, RESET, or OFF [See Steps 311 and 313], the index manager is operative to:

request an unconditional S-lock [lock request (See Steps 321 & 325)] on the table row corresponding to the existing index key entry; and

upon granting of the unconditional S-lock...[See the discussion of claim 4 above]" as claimed.



Referring to claim 7, Ponnekanti discloses the database management method as claimed. See the discussion of claim 4 above as well as the aforementioned portions of Ponnekanti's specification for the details of this disclosure. In particular, Ponnekanti teaches "A database management method for entering a key and a new row identification RID [table scan for insert or update] into a unique key table index of a database application that uses pseudo-deletion of table index entries, comprising:

searching [table scan 301] the unique key table index for the key;  
when a pseudo-deleted table index entry corresponding to the key is located during the searching step [See Step 312]: ... [See the discussion of claim 4 above] and conditional upon not locating a table index entry corresponding to the key during the searching step [table scan fails...index entry (row) does not exist...process regular insert], updating the table index by adding the key and the new row identification RID [See e.g. column 7, line 66 – column 8, line 2]" as claimed.

Referring to claim 8, Ponnekanti discloses the database management method as claimed. See Figure 3 and the corresponding portion of Ponnekanti's specification for this disclosure. In particular, Ponnekanti teaches the method according to claim 7, "wherein the step of receiving an indication that the Conditional S-lock is granted includes the steps of:

granting the Conditional S-lock [lock\_instant] conditional upon the table row indexed by the pseudo-deleted table index entry not having an X-lock assigned thereto [See column 13, lines 35-40];

granting the Conditional S-lock [lock\_instant] conditional upon the table row indexed by the pseudo-deleted table index entry having an X-lock assigned thereto wherein said X-lock has a Delete attribute that is not set, reset or off [ROW\_DELETE bit still set, but delete transaction is committed (See column 13, lines 40-42)]; and

receiving an indication...[See the discussions of claims 4 & 7 above]" as claimed.

Claim 9 is rejected on the same basis as claim 5, in light of the basis for claim 8 above. See the discussions regarding claims 1-5 and 7-8 above for the details of this disclosure.

Claim 10 is rejected on the same basis as claim 6, in light of the basis for claim 7 above. See the discussions regarding claims 1-3 and 6-7 above for the details of this disclosure.

Claims 11-14 are rejected on the same basis as claims 7-10 respectively. See the discussions regarding claims 7-10 above for the details of this disclosure.

Claims 15-18 are rejected on the same basis as claims 1-4 respectively. See the discussions regarding claims 1-4 above for the details of this disclosure.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Application Publication No. 2002/0087500 to Berkowitz et al; U.S. Patent No. 5,442,758 to Slingwine et al; and U.S. Patent No. 5,465,328 to Dievendorff et al. are each considered particularly pertinent to applicants' claimed invention.

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The remaining prior art of record is considered pertinent to applicants' disclosure, and/or portions of applicants' claimed invention.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Goddard whose telephone number is 703-305-7821. The examiner can normally be reached on M-F, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

bdg  
August 6, 2003

  
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